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IS 9888 (1981): Dimensions for sintered pellets of hard metal (carbide) for wire, bar and tube drawing dies [PGD 4: Metal Forming Machines]

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Indian Standard

(Reaffirmed 2002)

DIMENSIONS FOR SINTERED PELLETS OF HARD METAL (CARBIDE) FOR WIRE, BAR AND TUBE DRAWING DIES

Small Tools Sectional Committee, EDC 45; Carbide Tips, Indexable Inserts, Nibs and Dies Subcommittee, EDC 45 : 5 [Ref : Doc : EDC 45 (3465)]

1. Scope — Covers the dimensions for sintered pellets of hard metal (carbide) for wire, bar and tube drawing dies.

2. Code-Letter of Applications

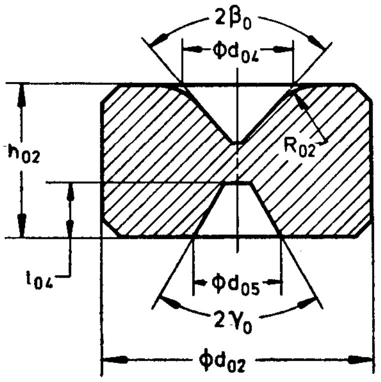
2.1 *For Sintered Pellets*

A — Sintered pellets for steel wire drawing dies.
B — Sintered pellets for non-ferrous wire drawing dies.
C — Sintered pellets for steel round bar drawing dies.
D — Sintered pellets for non-ferrous round bar drawing dies.
E — Sintered pellets for steel tube drawing dies.
F — Sintered pellets for non-ferrous tube drawing dies.

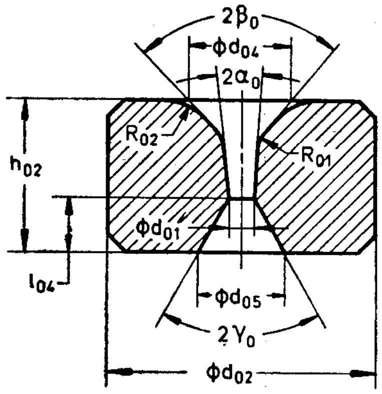
3. Dimensions and Tolerances

3.1 For sintered pellets of hard metal for steel wire drawing dies (code-letter A) and for non-ferrous wire drawing dies (code-letter B).

3.1.1 Dimensions for sintered pellets of hard metal for steel wire drawing dies (code-letter A) and for non-ferrous wire drawing dies (code-letter B).



TYPE I



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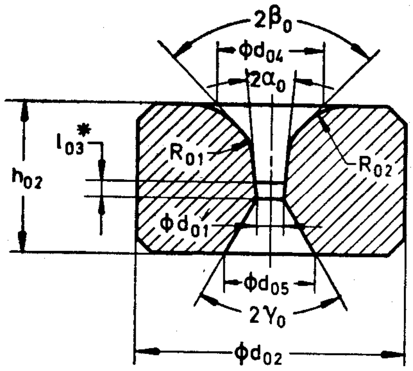

TYPE III

*$l_{03} \approx 0{\cdot}3\, d_{01}$

Adopted 24 July 1981

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[redacted] Gr 3

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Types	d_{02}	d_{01}	$2\alpha_0$ $\pm 1°$	h_{02}	$2\beta_0$ $\pm 2°$	$2\gamma_0$ $\pm 4°$	d_{04}	d_{05}
	mm	mm	deg	mm	deg	deg	mm	mm
I	8	—	—	4	90	90	4·2	2·2
II	8	0·1	10	4	90	90	3·6	2·2
II	8	0·3	10	4	90	90	3·6	2·2
I	10	—	—	8	90	90	7·6	6·2
II	10	0·1	10	8	90	90	5·5	3·5
II	10	0·3	10	8	90	90	6·0	3·5
II	10	0·6	12	8	90	90	6·0	4·0
II	10	1·0	12	8	90	90	6·0	4·0
II	10	1·5	12	8	90	90	6·0	4·5
II	12	0·2	10	10	90	90	7·0	4·5
II	12	0·6	12	10	90	90	7·0	4·5
II	12	1·0	12	10	90	90	7·0	5·0
II	12	1·4	12	10	90	90	7·0	5·0
II	12	1·8	12	10	90	90	8·0	5·0
II	14	0·2	10	12	60	75	7·0	5·0
II	14	0·6	12	12	60	75	7·0	5·0
II	14	1·0	12	12	60	75	7·0	5·0
II	14	1·4	12	12	60	75	7·0	5·0
II	14	1·8	12	12	60	75	8·0	5·5
II	14	2·4	14	12	60	75	8·0	6·0
II	16	0·3	10	13	60	75	8·0	5·0
II	16	0·6	12	13	60	75	8·0	5·0
II	16	1·0	12	13	60	75	8·5	5·0
II	16	1·4	12	13	60	75	9·0	5·5
II	16	1·8	12	13	60	75	9·0	6·0
II	16	2·2	14	13	60	75	9·5	6·5
II	16	2·6	14	13	60	75	9·5	6·5
II	16	3·0	14	13	60	75	9·5	7·0
II	20	1·0	12	17	60	60	8·5	6·0
II	20	1·6	12	17	60	60	8·5	6·5
II	20	2·2	14	17	60	60	10·0	6·5
II	20	2·8	14	17	60	60	10·0	7·0
II	20	3·4	14	17	60	60	11·0	8·0
II†	20	4·0	16	17	60	60	12·0	8·5
II†	20	4·6	16	17	60	60	12·5	9·0
II	25	2·0	12	20	60	60	11·5	7·0
II	25	2·7	14	20	60	60	12·0	7·5
II	25	3·4	14	20	60	60	13·0	8·0
II†	25	4·1	16	20	60	60	13·5	8·5
II†	25	4·8	16	20	60	60	14·0	9·0
II†	25	5·5	16	20	60	60	14·5	10·0
III	25	6·5	16	20	60	60	15·5	11·0
II	30	3·0	14	24	60	60	15·0	9·0
II	30	3·7	14	24	60	60	16·0	9·0
II†	30	4·5	16	24	60	60	17·0	10·0
II†	30	5·5	16	24	60	60	18·0	10·0
III	30	6·5	16	24	60	60	18·0	12·0
III	30	8·0	16	24	60	60	19·0	13·5
III	30	9·5	16	24	60	60	20·0	16·0

Note 1 — The values of R_{01} and R_{02} are left to the discretion of the manufacturer so as to satisfy other dimensions shown in the table.

Note 2 — The dimension l_{04} shall be fixed by agreement between user and manufacturer.

†When diameter d_{01} is greater than 4 mm, type II may be replaced by type III.

3.1.2 *Tolerances on Dimensions* d_{02}, d_{01} and h_{02}

3.1.2.1 *Tolerances on* d_{02}

All dimensions in millimetres.

d_{02}		Tolerances
From (Including)	To (Including)	
8	16	$+0·6$ $+0·2$
20	30	$+0·7$ $+0·2$

3.1.2.2 *Tolerances on* d_{01}

All dimensions in millimetres.

d_{01}		Tolerances
From (Including)	To (Excluding)	
0·1	0·3	0 —0·075
0·3	0·5	0 —0·10
0·5	2·0	0 —0·15
2·0	4·0	0 —0·20
4·0	6·0	0 —0·25
6·0	10·0	0 —0·30

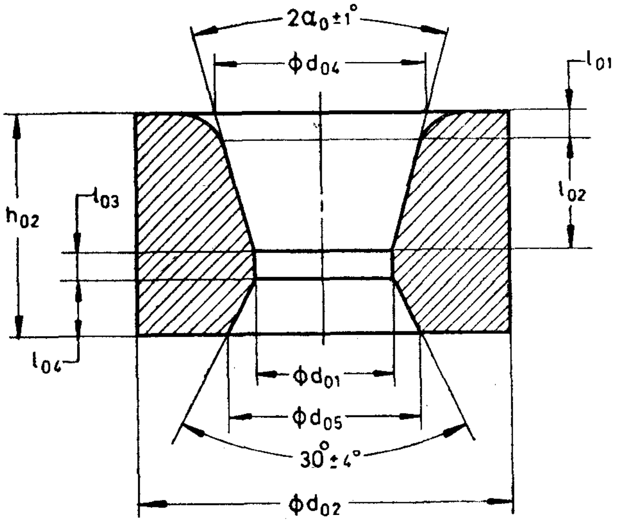
3.1.2.3 *Tolerances on* h_{02}

All dimensions in millimetres.

h_{02}		Tolerances
From (Including)	To (Including)	
4	10	± 0·2
12	17	± 0·3
20	24	± 0·4

3.2 For sintered pellets of hard metal for steel round bar drawing dies (code-letter C), non-ferrous round bar drawing dies (code-letter D), steel tube drawing dies (code-letter E) and non-ferrous tube drawing dies (code-letter F).

3.2.1 *Dimensions for sintered pellets of hard metal for steel round bar drawing dies (code-letter C), non-ferrous round bar drawing dies (code-letter D), steel tube drawing dies (code-letter E) and non-ferrous tube drawing dies (code-letter F).*



All dimensions in millimetres.

d_{02}	d_{01} * such that, for finished drawing dies one obtains						h_{02}	l_{04}
	Types of drawing dies							
	Code-letter C		Code-letter D		Code-letters E and F			
	d_1 *Min*	d_1 *Max*	d_1 *Min*	d_1 *Max*	d_1 *Min*	d_1 *Max*		
25	—	—	9	12	10	12	20	5
30	9	13	11	14	11	14	24	5·5
35	12	16	13	18	13	18	24	5·5
40	15	19	17	21	17	22	24	5·5
45	18	22	20	25	21	26	25	6
50	21	25	24	28	24	30	25	6
55	24	28	27	32	28	34	27	6·5
60	27	31	30	36	32	38	27	6·5
65	29	34	34	40	36	42	27	6·5
70	32	37	38	44	40	45	30	7·5
75	35	41	42	48	43	50	30	7·5
80	39	45	46	52	48	55	30	7·5
85	43	49	50	56	53	58	33	8
90	47	53	54	60	56	62	33	8
95	—	—	58	64	60	67	33	8
100	51	61	62	68	65	70	35	8·5
105	—	—	65	72	68	75	35	8·5
110	—	—	—	—	73	78	38	8·5
120	—	—	—	—	74	88	38	9
130	—	—	—	—	84	97	40	9
140	—	—	—	—	93	106	40	9
150	—	—	—	—	102	115	40	9

Note — The values of dimensions d_{04}, d_{05}, l_{01}, l_{02} and l_{03} shall be fixed by agreement between user and manufacturer.

* d_{01} shall be determined when ordering, taking into account the minimum machining allowance: $d_{01} = d_1$ — machining allowance (*see* **3.2.2**).

3.2.2 Machining allowances on dimension d_{01}

All dimensions in millimetres.

d_{02}		**Machining Allowance on d_{01}**
From (Including)	To (Including)	
25	80	0·5
85	100	0·6
105	150	0·8

***3.2.3** Tolerances to be applied to d_{02}, d_{01} and h_{02}*

***3.2.3.1** Tolerances on d_{02}*

All dimensions in millimetres.

d_{02}		**Tolerances**
From (Including)	To (Including)	
25	30	$^{+0.7}_{+0.2}$
35	150	± 1%

3.2.3.2 *Tolerances on d_{01}*

All dimensions in millimetres.

d_{01} *		Tolerances
From (Including)	To (Excluding)	
—	12	0 -0.3
12	16	0 -0.35
16	20	0 -0.4
20	25	0 -0.45
25	32	0 -0.5
32	40	0 -0.6
40	50	0 -0.75
50	63	0 -0.9
63	80	0 -1.1
80	100	0 -1.3
100	115	0 -1.5

* The tolerance on d_{01} applies to the greatest measured value of d_{01}.

3.2.3.3 *Tolerances on h_{02}*

All dimensions in millimetres.

h_{02}		Tolerances
From (Including)	To (Including)	
20	27	±0·4
30	40	±0·5

4. Designation — Shall be designated by the name, code-letter of pellet, type (if applicable), external diameter of pellet, bore diameter of pellet, drawing angle or radius as applicable, designation of range of application and number of this standard.

Example 1:

A sintered pellet for steel wire drawing dies of Type II having external diameter $d_{02} = 14$ mm; bore diameter $d_{01} = 0{\cdot}6$ mm, drawing angle $2\alpha 0 = 12°$, of range of application K20 and conforming to this standard, shall be designated as:

Sintered Pellet A II 14×0·6×12° IS : 9888 K20

Example 2:

A sintered pellet for steel round bar drawing dies having external diameter $d_{02} = 40$ mm, bore diameter $d_{01} = 14$ mm, drawing angle $2\alpha 0 = 16°$, of range of application K20 and conforming to this standard, shall be designated as:

Sintered Pellet C40×14×16° IS : 9888 K20

5. Marking — Shall be marked with the designation as given in **4**, except the name and the IS number (if not certified by Indian Standards Institution) and the manufacturers' name or trade-mark.

5.1 *ISI Certification Marking* — Details available with the Indian Standards Institution.

6. Protective Coating and Packing — The sintered pellets shall be suitably packed to avoid damage in handling.

EXPLANATORY NOTE

This standard has been prepared to correlate the dimensions of sintered pellets with that of wire bar and tube drawing dies.

In the preparation of this standard considerable assistance has been derived from ISO: 2804-1973 'Wire, bar or tube drawing dies — as sintered pellets of hard metal (carbide) — dimensions' issued by the International Organization for Standardization.

Other related standard is IS: 4918-1981 Specification for hard metal (carbide), wire, bar and tube drawing dies (*first revision*).

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